Certification Summary Information Report

Manufacturer	Mahindra North American Technical Center, Inc.	Manufacturer Code	MNC
Engine Family	KMNCX2.52DM1	Model Year	2019
Certificate Number	KMNCX2.52DM1-001-R01	Certificate Issue Date	08/17/2018
Certificate Effective Date	08/17/2018	Certificate Revision Date	04/12/2019

General Information

Vehicle Category ATVB-Meeting EPA ATV Definition Sales Areas of All Vehicles/Engines in This

Engine Family Some 50, Some 49

Are you Certifying This Vehicle/Engine By

Design No

Parent Company Name Mahindra Automotive North America, Inc.

Application Type Correction

Permeation Family Name

KMNCPMETALA0

MNA

07/26/2018

Regular Volume

Does this Perm Family participate in Average Banking and Trading?

No

Does this EF participate in an EPA and/or

Small Volume Manufacturer Recognition

Manufacturer Code assigned by CARB

EPA Certification Fee Paid Date

CARB emission averaging program?

No

Does this EF participate in EPA and/or CARB emission averaging program?

Testing procedure applied for exhaust

emissions values

40CFR86, Subpart E: Chassis test

If Other, Please provide EPA/CARB approval

Engine Original Equipment Manufacturer

ID for this testing procedure

Are you the original manufacturer of the certifying vehicle/engine?

Yes

Vehicle Original Equipment Manufacturer

Country where the Vehicles were assembled

Mahindra & Mahindra, Ltd.

Country where the Engines were assembled

India

Mahindra North American Technical Center, Inc. USA

Manufacturer Comments

EPA Emission Standards and Certification Levels

EPA Exhaust Emissions units:G/k	ΚM			
Air Pollutant	НС	NOx	HC+NOx	CO
Certification Level		0.4	0.5	0.1
Family Emission Limit				
Emission Standards			1.5	35
Applicant Notes				

CARB Emission Standards and Certification Levels

CARB HMC Early Compliance Multiplier:	Evaporative Emissions (HMC CARB-only) Diurnal + Hot Soak Evaporative Emissions
	(Unit: g/test):

Engine Family	KMNCX2.52DM1	Model Year	2019	
Engine Family Description				
Engine Family Useful Life EF Fuel System Type	EPA Required Useful Life Single Fuel System			
Primary O _I	perating Fuel Type Diesel		Fuel Type, If Other	
Combustion Cycle Combustion Cycle, If Other	4-Stroke			
Cylinder Arrangement Cylinder Arrangement, If Other	In Line			
Number of Cylinders Engine Type	4 Other	Valves per Cylinder	2	
Engine Type, If Other Turbo-Diesel				
Engine Cooling Media Engine Cooling Media, If Other	Liquid Cooled			
Does this engine family contain multiple displacements?	No	New Technology	No	
Technology explanation Applicant Notes				

Engine Family	KMNCX2.52DM1	Model Year	2019
Exhaust Emission Control Information			
ECS Reference Number	1	Is this engine family equipped with a catalytic converter?	Yes
Total number of catalytic converters	1	Applicable catalytic converter configuration	Single
Catalytic converter type used	oxidizing catalyst only	-	
Catalyst Manufacturer Name		Catalyst Manufacturer Location	
Does the engine family use an Exhaust Gas Recirculation (EGR) technology as part of the Emission Control System?	Yes	Description of the EGR technology used	Cooled variable EGR
Applicable engine fuel system type	Other	Description of the Box technology used	Cooled variable LOR
If Other, Enter a description of the fuel system			
Common rail system	_		
Method of air aspiration for the engine	Turbocharged		
Method of engine aspiration, If Other	<u> </u>		
Charge Air Cooler Type	No Air Cooler		
Electronic engine control module type	Engine Control Module		
Applicable method of air injection methodology	Not Applicable		
Air injection methodology, If Other			
Air/fuel feedback sensor used on this engine family	No		
Sensor Type			
Sensor Type, If Other			
Configuration of the feedback sensors arrangement			
Applicant Notes			

Engine Family	KMNCX2	52DM1		Model Yea	r		2019			
Exhaust Emission Data Vehicle	le/Engine (EDV/E) and	Emissions Test D	ata							
Γest Vehicle Number	1			EDV ID			M-01			
EDV/Test Data Type	New			Original E	F Name That C	ontains EDV Da	ata			
DDV Engine Family if Different f	from EDV									
Engine Family				Configurat				R DI BSIV		
Model Name	M540				ure (in PSI)		28			
Road Load Force (N)	314			Rated Pow			63			
Rated Power Unit	bhp			RPM at Ra			3200			
Cylinder (Block) Arrangement	In Line			Number of	=		4			
ECS Number (From Tab 4)	1			Displacem			2523			
Transmission	Manual			Number of			5			
N/V Ratio	34.8			=	Inertia Mass (i	_	1540			
Curb Mass (in kg)	1378			Loaded Ve	chicle Mass (kg)	•	1458			
Manufacturer Comments										
			Tested at Cumulativ e Km or	Test Measuremen	Tost Dosult					
MFR Test ID Test Date Number	Test By Test Fo	or Test Fuel	Hr	t Unit	Unit	HC	NOx	HC + NOx	CO	CO2
	Test By Test Fo	or Test Fuel	Hr			НС	NOx	HC + NOx	CO	CO2
	Test By Test Fo	or Test Fuel	Hr			НС	NOx	HC + NOx	CO	CO2
	Test By Test Fo	r Test Fuel	Hr			НС	NOx	HC + NOx	CO	CO2
	Test By Test Fo	or Test Fuel	Hr			НС	NOx	HC + NOx	CO	CO2
	Test By Test Fo	r Test Fuel	Hr			НС	NOx	HC + NOx	CO	CO2
	Test By Test Fo	r Test Fuel	Hr			НС	NOx	HC + NOx	СО	CO2
	Test By Test Fo	r Test Fuel	Hr			НС	NOx	HC + NOx	CO	CO2
Test Date Number		or Test Fuel	Hr			нс	NOx	HC + NOx	CO	CO2
Test Date Number	Deterioration Factors		Hr			HC + NO		HC + NOx	CO	CO2
Test Date Number EPA Certification Levels and	Deterioration Factors		Hr	t Unit				HC + NOx		CO2
Test Date Number EPA Certification Levels and End of Useful Life Emissions Va	Deterioration Factors alue HO	2.55	Hr	t Unit		HC + NO	x	HC + NOx	СО	CO2

Date: 06/03/2019 02:39:46 PM

Engine Family		KMNCX2.52DM1		Model Year		2019	
Federal Mandator	ry Greenhouse Gas ((GHG) Reporting					
GHG Name	GHG Value	Unit of GHG Value	Measured/Estimated at Distance (km)	By Method	Test Vehicle ID	Reference/Citations	Test/Estimation Date
СН4	0.005	Grams Per Kilometer	335	Tested result from the EDV(s) of the Engine Family	M-01	Test #2017061601	06/16/2017
N2O	0.036	Grams Per Kilometer	335	Derived results based on EPA GHG default factor	_	Greenhouse Gas Report -MIC	N/A
CO2	187	Grams Per Kilometer	335	Tested result from the EDV(s) of the Engine Family	M-01	Test #2017061601	06/16/2017
Applicant notes for	GHG data						

Engine Family	KMNCX2.52DM1	Model Year	2019
EPA - ONLY Permeation Emissions Con	trol/Test Data		
Fuel Tank Permeation Emissions Details			
Fuel Tank #1			
Permeation Family Name	KMNCPMETALA0	Certification Level (g/m2/day)	0.0
Emission Standard (g/m2/day)	1.5	Family Emission Limit (g/m2/day)	
Certification Method	Design technologies (per 40 CFR 1051.245 Table 1)	Fuel Tank Manufacturer	Mahindra & Mahindra
Applicable permeation emission certify-by- design technology category	based on 40CFR1051.245, Table 1 (i)		
Other			
Use Carry-over Test Data?		If carryover, from Permeation Family	
Carryover DF		If carryover, from DF Permeation Family	
Tank Material if Other			
Least Thickness (mm)		Least Barrier Weight (%)	
Least Barrier Mol (%)		Least Barrier Thickness (mm)	
Production Method if Other			
Test Data (g/m2/day)		DF (g/m2/day)	
EPA Certificate Number			
Fuel Line Permeation Emissions Details			
Fuel Line #1			
Certification Level (g/m2/day)	0.0	Emission Standard (g/m2/day)	15
	Design technologies (per 40 CFR 1051.245 Table	T 171 37 0 1	NODIAL G
Permeation Emissions Certification Method	2)	Fuel Line Manufacturer	NORMA Group
Certified By Design LINE		Applicable permeation emission certify-by- design technology category	based on 40CFR1051.245, Table 1 (ii)
Other			
Use Carry-over Test Data?		If carryover, from Permeation Family	
Carryover DF		If carryover, from DF Permeation Family	
Fuel Line Material			
Least Thickness (mm)		Test Results (g/m2/day)	
DF (g/m2/day)		EPA Certificate Number	
Comments			

Certification Summary Information Report

Final Assembly Manufacturer Name Commercial / Advertised Model Name Vehicle Category Number of Evaporative Canisters (CARB) Bore (mm) Basic Ignition Timing (degrees, BTDC) RPM @ Rated Power RPM @ Rated Torque Curb Mass (kg) Loaded Vehicle Mass (kg):	MNATC, Inc. ROXOR All-Terrain Vehicle Category B (Meeting Only EPA Definition) 88.9 1 3200 2200 1378
Commercial / Advertised Model Name Vehicle Category Number of Evaporative Canisters (CARB) Bore (mm) Basic Ignition Timing (degrees, BTDC) RPM @ Rated Power RPM @ Rated Torque Curb Mass (kg)	ROXOR All-Terrain Vehicle Category B (Meeting Only EPA Definition) 88.9 1 3200 2200
Commercial / Advertised Model Name Vehicle Category Number of Evaporative Canisters (CARB) Bore (mm) Basic Ignition Timing (degrees, BTDC) RPM @ Rated Power RPM @ Rated Torque Curb Mass (kg)	ROXOR All-Terrain Vehicle Category B (Meeting Only EPA Definition) 88.9 1 3200 2200
Vehicle Category Number of Evaporative Canisters (CARB) Bore (mm) Basic Ignition Timing (degrees, BTDC) RPM @ Rated Power RPM @ Rated Torque Curb Mass (kg)	All-Terrain Vehicle Category B (Meeting Only EPA Definition) 88.9 1 3200 2200
Number of Evaporative Canisters (CARB) Bore (mm) Basic Ignition Timing (degrees, BTDC) RPM @ Rated Power RPM @ Rated Torque Curb Mass (kg)	EPA Definition) 88.9 1 3200 2200
Bore (mm) Basic Ignition Timing (degrees, BTDC) RPM @ Rated Power RPM @ Rated Torque Curb Mass (kg)	88.9 1 3200 2200
Basic Ignition Timing (degrees, BTDC) RPM @ Rated Power RPM @ Rated Torque Curb Mass (kg)	1 3200 2200
RPM @ Rated Power RPM @ Rated Torque Curb Mass (kg)	3200 2200
RPM @ Rated Torque Curb Mass (kg)	2200
Curb Mass (kg)	
	1378
Loaded Vehicle Mass (kg):	
	1458
Projected Sales (CBI) - CA Only	
Projected Sales (CBI) - US (49-States)	
_	
Final Assembly Manufacturer Name	MNATC, Inc.
Commercial / Advertised Model Name	ROXOR
Vehicle Category	Sand Car
Number of Evaporative Canisters (CARB)	
Bore (mm)	88.9
Basic Ignition Timing (degrees, BTDC)	1
RPM @ Rated Power	3200
RPM @ Rated Torque	2200
	1378
-	1458
Curb Mass (kg)	
-	
	_

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Engine Family	KMNCX2.52DM1	Model Year	2019
Emission Control System (model / rating	1	Projected Soles (CDI) CA Only	
specific) Projected Sales (CBI) - US Total (includes CA	1	Projected Sales (CBI) - CA Only	
Sales)		Projected Sales (CBI) - US (49-States)	
Mfr Previously Exempted?			
Permeation Family Name (s)	KMNCPMETALA0		
Applicant Notes			
Model #3			
Reference Model Number	3	Final Assembly Manufacturer Name	MNATC, Inc.
Manufacturer Model Name	M540	Commercial / Advertised Model Name	ROXOR Dune Edition
Translated From Transc	1113-10	Commercial / Marce Essed Marder Marine	All-Terrain Vehicle Category B (Meeting Only
Engine Code	LCCR DI BSIV	Vehicle Category	EPA Definition)
Evaporative Family (CARB)		Number of Evaporative Canisters (CARB)	
Displacement (cc)	2523	Bore (mm)	88.9
Stroke (mm)	101.6	Basic Ignition Timing (degrees, BTDC)	1
Rated Power (kW)	47	RPM @ Rated Power	3200
Rated Torque (nt-m)	195	RPM @ Rated Torque	2200
N/V Ratio	34.8	Curb Mass (kg)	1378
Equivalent Inertial Mass (kg)	1540	Loaded Vehicle Mass (kg):	1458
Transmission (e.g. M5, A3, etc.)	M5		
Vehicle Emission Compliance Information (VECI) Label Type	49-state Sales w/ 49-state Label		
Fuel System			
Emission Control System (model / rating specific)	1	Projected Sales (CBI) - CA Only	
Projected Sales (CBI) - US Total (includes CA Sales)		Projected Sales (CBI) - US (49-States)	
Mfr Previously Exempted?			
Permeation Family Name (s)	KMNCPMETALA0		
Applicant Notes			
Model #4			
Reference Model Number	4	Final Assembly Manufacturer Name	MNATC, Inc.
Manufacturer Model Name	M540	Commercial / Advertised Model Name	ROXOR Dune Edition
Engine Code	LCCR DI BSIV	Vehicle Category	Sand Car
Evaporative Family (CARB)		Number of Evaporative Canisters (CARB)	
Displacement (cc)	2523	Bore (mm)	88.9
Stroke (mm)	101.6	Basic Ignition Timing (degrees, BTDC)	1
Rated Power (kW)	47	RPM @ Rated Power	3200
Rated Torque (nt-m)	195	RPM @ Rated Torque	2200

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Engine Family	KMNCX2.52DM1	Model Year	2019
N/V Ratio	34.8	Curb Mass (kg)	1378
Equivalent Inertial Mass (kg)	1540	Loaded Vehicle Mass (kg):	1458
Transmission (e.g. M5, A3, etc.)	M5	Loaded Venicle Mass (kg).	1430
Vehicle Emission Compliance Information (VECI) Label Type	50-state sales w/ 50-state Label		
Fuel System			
Emission Control System (model / rating specific)	1	Projected Sales (CBI) - CA Only	
Projected Sales (CBI) - US Total (includes CA- Sales)		Projected Sales (CBI) - US (49-States)	
Mfr Previously Exempted?			
Permeation Family Name (s)	KMNCPMETALA0		
Applicant Notes			
Model #5			
Reference Model Number	5	Final Assembly Manufacturer Name	MNATC, Inc.
Manufacturer Model Name	M540	Commercial / Advertised Model Name	ROXOR
Engine Code	LCCR DI BSIV	Vehicle Category	All-Terrain Vehicle Category B (Meeting Only EPA Definition)
Evaporative Family (CARB)		Number of Evaporative Canisters (CARB)	
Displacement (cc)	2523	Bore (mm)	88.9
Stroke (mm)	101.6	Basic Ignition Timing (degrees, BTDC)	1
Rated Power (kW)	47	RPM @ Rated Power	3200
Rated Torque (nt-m)	195	RPM @ Rated Torque	2200
N/V Ratio	29.1	Curb Mass (kg)	1378
Equivalent Inertial Mass (kg)	1540	Loaded Vehicle Mass (kg):	1458
Transmission (e.g. M5, A3, etc.)	A6		
Vehicle Emission Compliance Information (VECI) Label Type	49-state Sales w/ 49-state Label		
Fuel System			
Emission Control System (model / rating specific)	1	Projected Sales (CBI) - CA Only	
Projected Sales (CBI) - US Total (includes CA Sales)		Projected Sales (CBI) - US (49-States)	
Mfr Previously Exempted?		_	
Permeation Family Name (s)	KMNCPMETALA0		
Applicant Notes			
Model #6			
Reference Model Number	6	Final Assembly Manufacturer Name	MNATC, Inc.
Manufacturer Model Name	M540	Commercial / Advertised Model Name	ROXOR

Engine Family	KMNCX2.52DM1	Model Year	2019
Engine Code	LCCR DI BSIV	Vehicle Category	Sand Car
Evaporative Family (CARB)		Number of Evaporative Canisters (CARB)	
Displacement (cc)	2523	Bore (mm)	88.9
Stroke (mm)	101.6	Basic Ignition Timing (degrees, BTDC)	1
Rated Power (kW)	47	RPM @ Rated Power	3200
Rated Torque (nt-m)	195	RPM @ Rated Torque	2200
N/V Ratio	29.1	Curb Mass (kg)	1378
Equivalent Inertial Mass (kg)	1540	Loaded Vehicle Mass (kg):	1458
Transmission (e.g. M5, A3, etc.)	A6		
Vehicle Emission Compliance Information (VECI) Label Type	50-state sales w/ 50-state Label		
Fuel System			
Emission Control System (model / rating specific)	1	Projected Sales (CBI) - CA Only	
Projected Sales (CBI) - US Total (includes CA Sales)		Projected Sales (CBI) - US (49-States)	
Mfr Previously Exempted?			
Permeation Family Name (s)	KMNCPMETALA0		
Applicant Notes			
Model #7			
Reference Model Number	7	Final Assembly Manufacturer Name	MNATC, Inc.
Manufacturer Model Name	M540	Commercial / Advertised Model Name	ROXOR Dune Edition
Wandracturer Woder Name	W1540	Commercial / Advertised Woder Wallie	All-Terrain Vehicle Category B (Meeting Only
Engine Code	LCCR DI BSIV	Vehicle Category	EPA Definition)
Evaporative Family (CARB)		Number of Evaporative Canisters (CARB)	
Displacement (cc)	2523	Bore (mm)	88.9
Stroke (mm)	101.6	Basic Ignition Timing (degrees, BTDC)	1
Rated Power (kW)	47	RPM @ Rated Power	3200
Rated Torque (nt-m)	195	RPM @ Rated Torque	2200
N/V Ratio	29.1	Curb Mass (kg)	1378
Equivalent Inertial Mass (kg)	1540	Loaded Vehicle Mass (kg):	1458
Transmission (e.g. M5, A3, etc.)	A6		
Vehicle Emission Compliance Information (VECI) Label Type	49-state Sales w/ 49-state Label		
Fuel System			
Emission Control System (model / rating specific)	1	Projected Sales (CBI) - CA Only	
Projected Sales (CBI) - US Total (includes CA Sales)		Projected Sales (CBI) - US (49-States)	
Mfr Previously Exempted?		_	
Permeation Family Name (s)	KMNCPMETALA0		

Engine Family	KMNCX2.52DM1	Model Year	2019
Applicant Notes			
Model #8			
Reference Model Number	8	Final Assembly Manufacturer Name	MNATC, Inc.
Manufacturer Model Name	M540	Commercial / Advertised Model Name	ROXOR Dune Edition
Engine Code	LCCR DI BSIV	Vehicle Category	Sand Car
Evaporative Family (CARB)		Number of Evaporative Canisters (CARB)	
Displacement (cc)	2523	Bore (mm)	88.9
Stroke (mm)	101.6	Basic Ignition Timing (degrees, BTDC)	1
Rated Power (kW)	47	RPM @ Rated Power	3200
Rated Torque (nt-m)	195	RPM @ Rated Torque	2200
N/V Ratio	29.1	Curb Mass (kg)	1378
Equivalent Inertial Mass (kg)	1540	Loaded Vehicle Mass (kg):	1458
Transmission (e.g. M5, A3, etc.)	A6		
Vehicle Emission Compliance Information (VECI) Label Type	50-state sales w/ 50-state Label		
Fuel System			
Emission Control System (model / rating specific)	1	Projected Sales (CBI) - CA Only	
Projected Sales (CBI) - US Total (includes CA Sales)		Projected Sales (CBI) - US (49-States)	
Mfr Previously Exempted?		-	
Permeation Family Name (s)	KMNCPMETALA0		
Applicant Notes			